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A new species of *Heteroconium* from Fujian, China

Yi-Dong Zhang, Jian Ma, Li-Guo Ma & Xiu-Guo Zhang*

zhxg@sdau.edu.cn, sdau613@163.com
Department of Plant Pathology, Shandong Agricultural University
Taian, 271018, China

Abstract — *Heteroconium schimae* sp. nov. is described and illustrated occurring on dead branches of *Schima superba*. The specimen was collected from tropical forests in Fujian province of China. The type specimen is deposited in HSAUP (Herbarium of the Department of Plant Pathology, Shandong Agricultural University) and HMAS (Mycological Herbarium, Institute of Microbiology, Chinese Academy of Sciences).

Key words — hyphomycetes, taxonomy

Introduction

The genus *Heteroconium* was erected by Petrak (1949) with *H. citharexyli* F. Petr as the type species. The generic characteristics of *Heteroconium* include macronematous, mononematous conidiophores which are unbranched or with a few branches originating after conidial secession. The conidiogenous cells are monoblastic, terminal, and proliferate percurrently, and the conidia are dry, euseptate, cylindrical to oblong, sometimes curved, and arise in acropetal unbranched chains (Petrak 1949, Castañeda et al. 1999, Taylor et al. 2001). Conidial secession is schizolytic. These characters also separate the genus from similar genera such as *Lylea* Morgan-Jones, *Xenoheteroconium* Bhat et al., *Cladophialophora* Borelli, *Septonema* Corda, *Phaeoblastophora* Partr. & Morgan-Jones, *Taeniolella* S. Hughes, *Cylindrium* Bonord, and *Hormiactis* Preuss (Castañeda et al. 1999, Kwaśna et al. 2007). To date, 18 taxa have been assigned to the genus *Heteroconium*, although several have been transferred to other genera. *Heteroconium tetracoilum* (Corda) M.B. Ellis (Ellis 1976) was transferred to *Lylea* as *L. tetracoila* (Corda) Hol.-Jech. (Holubová-Jechová 1978), while *Heteroconium solaninum* (Sacc.& P. Syd.) M.B. Ellis (Ellis 1976) was designated as the type species of the genus *Pirozynskiella* S. Hughes (Hughes 2007) based on its obligate association with asterinaceous fungi

*Corresponding author

and in the centrifugal sequence of conidium trans-septation after the initial median septum. *Heteroconium chaetospira* (Grove) M.B. Ellis (Ellis 1976) was transferred to *Cladophialophora* as *C. chaetospira* (Grove) Crous & Arzanlou (Crous et al. 2007) following a molecular study of the *Herpotrichiellaceae* and *Venturiaceae*. *Heteroconium queenslandicum* Matsush. (Matsushima 1989) has undifferentiated conidiophores and both mono- and polyblastic conidiogenous cells. It is not congeneric with *Heteroconium* species and is more closely related to the genus *Parapleurotheciopsis* P.M. Kirk (Kirk 1982), although a new combination has not been proposed from China.

The species of *Heteroconium* have been described from a variety of substrates including living or decaying leaves, dead twigs, dead wood, and bark, especially in damp conditions and warmer climates. During a study of tropical microfungi from the forest of Fujian province of southern China, numerous anamorphic fungi were collected. Among them, a previously undescribed species of *Heteroconium* was found which differed in conidial morphology. It is proposed herein as new.

Taxonomic description

Heteroconium schimae Y.D. Zhang & X.G. Zhang, **sp. nov.** Figure 1

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Coloniae in substrato naturali effusae, atro-brunneae. Mycelium partim superficiale, partim immersum, ex hyphis septatis, pallide brunneis, laevibus, 1–2 µm crassis compositum. Conidiophora macronematosa, mononematosa, nonramosa, erecta, cylindrica, recta, laevia, atro-brunnea, 4–10-septata, 59–127 × 4–5.5 µm. Cellulae conidiogenae monoblasticae, terminales, brunnea, laevia, 9–16.5 × 4–5.5 µm. Conidiorum secessio schizolytica. Conidia cylindrica, lata fusiformia usque ad obclavata, frequenter attenuata ad alternus cum terminales, holoblastica, dilute brunneae, laevibus, 0–6-euseptata, 13–44 × 5.5–10 µm. Teleomorphosis ignota.

Holotype: on dead branches of *Schima superba* Gardn. & Champ. (*Theaceae*), forest park of Wuyishan, Fujian Province, China. Aug. 16. 2009, Y.D. Zhang, HSAUP H3100 (isotype HMAS 144866).

Etymology: in reference to the substrate genus, *Schima*.

Colonies on the natural substratum, effuse, dark brown. Mycelium partly superficial, partly immersed, composed of septate, pale brown, smooth-walled hyphae, 1–2 µm thick. Conidiophores macronematous, mononematous, unbranched, erect, cylindrical, straight, smooth, dark brown, 4–10-septate, 59–127 × 4–5.5 µm. Conidiogenous cells monoblastic, terminal, brown, smooth, 9–16.5 × 4–5.5 µm. Conidial secession schizolytic. Conidia cylindrical, broad fusiform to obclavate, often tapered at one or both the ends, holoblastic, in chains of up to 4, occasionally with a secondary conidium from its neighbors or from conidial secession, pale brown, smooth-walled, 0–6-euseptate, 13–44 × 5.5–10 µm. Teleomorph unknown.

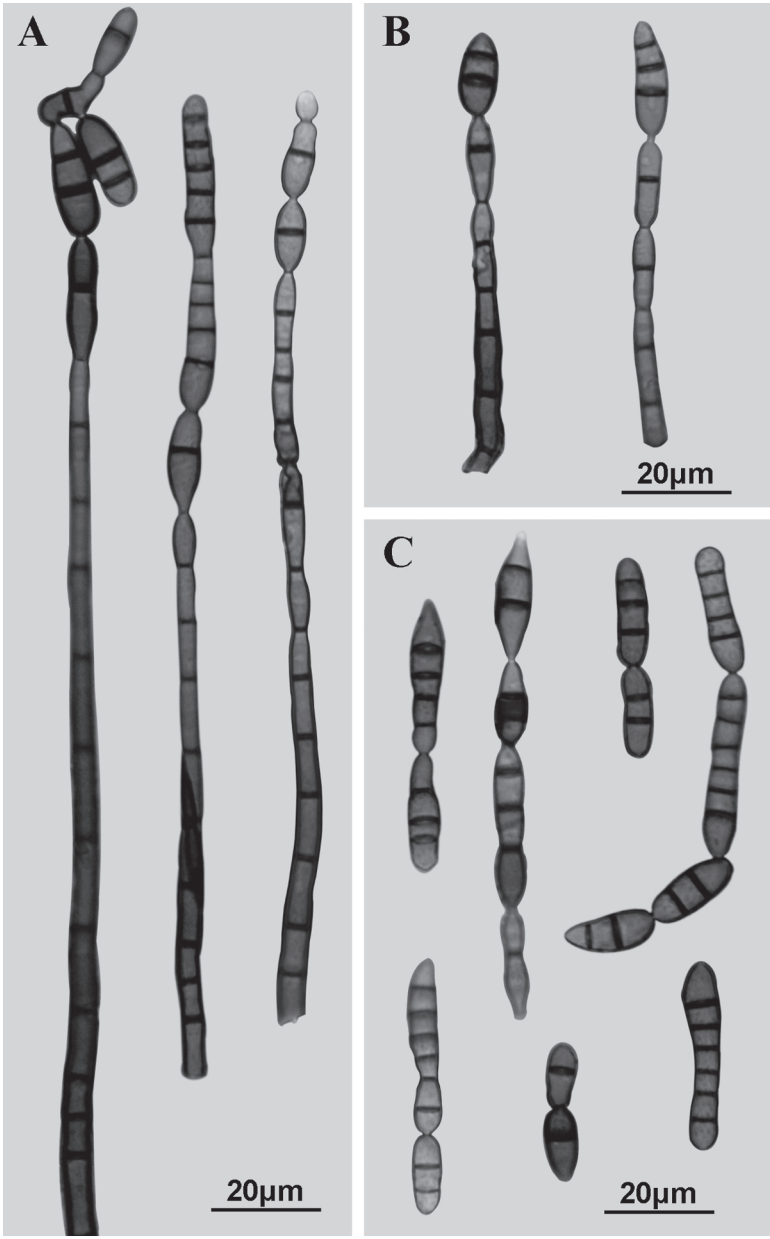

Fig. 1. *Heteroconium schimae*. A–B. Conidiophores with conidia. C. Conidia.

The conidia of *H. schimae* are similar in shape and septation to those of *H. arundicum* Chowdhry (Chowdhry 1980) and *H. citharexyli* (Petrak 1949). However, the conidia of *H. schimae* are smaller than those of *H. arundicum* (35–95 × 8–12 μm), while the conidiogenous cells of *H. citharexyli* are determinate or proliferate percurrently, a feature not found in *H. schimae*. In addition, the conidia of *H. schimae* are in chains of up to 4 and occasionally have a secondary conidium, whereas those are not produced by *H. arundicum* and *H. citharexyli*.

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Literature cited

Castañeda Ruíz RF, Saikawa M, Guarro J. 1999. A new species of *Heteroconium* from a tropical rainforest. Mycotaxon 71: 295–300.

Chowdhry PN. 1980. A new species of *Heteroconium* from India. Indian Phytopathology 33: 361–362.

Crous PW, Schubert K, Braun U, Hocking AD, Shin HD, Groenewald JZ. 2007. Opportunistic, human-pathogenic species in the *Herpotrichiellaceae* are phenotypically similar to saprobic or phytopathogenic species in the *Venturiaceae*. Studies in Mycology 58: 185–217. doi:10.3114/sim.2007.58.07

Ellis MB. 1976. More dematiaceous hyphomycetes. Commonwealth Mycological Institute, Kew 507 p.

Holubová-Jechová V. 1978. Lignicolous hyphomycetes from Czechoslovakia 5. *Septonema*, *Hormiactella*, and *Lylea*. Folia Geobotanica et Phytotaxonomica 13: 421–442.

Hughes SJ. 2007. *Heteroconium* and *Pirozynskiella* n. gen., with comments on conidium transseptation. Mycologia 99: 628–638. doi:10.3852/mycologia.99.4.628

Kirk PM. 1982. New or interesting microfungi. IV. Dematiaceous hyphomycetes from Devon. Transactions of the British Mycological Society 78: 55–74.

Kwaśna H, Bateman GL. 2007. *Heteroconium* sp.nov. from roots of *Triticum aestivum* in the United Kingdom. Mycologia 99: 777–785. doi:10.3852/mycologia.99.5.777

Matsushima T. 1989. Matsushima Mycological Memoirs 6: 1–100 Kobe, published by the author.

Petrak F. 1949. Neue Hyphomyzeten-Gattungen aus Ekuador. Sydowia 3: 259–266.

Taylor JE, Crous PW, Palm ME. 2001. Foliar and stem fungal pathogens of *Proteaceae* in Hawaii. Mycotaxon 78: 449–490.